ANALGESIC EFFICACY OF TRAMADOL AND KETORLAC FOLLOWING THIRD MOLAR SURGERY

Pavan D Tenglikar

ABSTRACT

Aims and Objectives: To compare the postoperative analgesic efficacy of tramadol and ketorlac following surgical removal of impacted mandibular third molar. Materials and methods: One hundred and fifty patients under the age group of 18–30 years with asymptomatic, symmetrically impacted mandibular third molars were randomly divided into two groups and underwent third molar surgery under local anesthesia. Group A received 50 mg tramadol orally and Group B received 10 mg of ketorlac orally and doses were repeated for 24 hrs. Criteria of efficacy were a decrease in pain intensity on a visual analogue scale (VAS). Results: In Group A, the analgesia started with in first hour and at the end of 24 hours, pain intensity was 2.18 out of 10 on visual analog scale. In group B, analgesia started with in 30 mins and at the end of 24 hours, the pain intensity was 2.82 on visual analog scale. The adverse effects in Group A were minimal as compared to Group B. Conclusion: Tramadol, had better efficacy in pain control as compared to ketorlac.

Keywords: Ketorolac; Pain; Third molar tooth; Tramadol; Visual Analog Scale.

Introduction

Surgical removal of impacted mandibular third molar is one of the most common dental surgical procedures. Third molars are the commonest teeth to be found impacted in order of frequency (98%) followed by upper canine (1.3%) and lower pre molars (0.11%). An impacted wisdom tooth can cause infection in the gum surrounding the tooth leading to pain and swelling. To avoid these problems it is always better to remove the tooth. However, the management of pain consequent to tooth extraction is always a major concern for the individual. The way pain is experienced is a reflection of individual’s emotional, social, and cultural circumstances. Management of post extraction pain relieves suffering and leads to earlier mobilization, shortened hospital stay, reduced hospital costs and increased patient satisfaction.

Tramadol is typically centrally acting analgesic because of its combined effects as an opioid agonist and a serotonin and nor adrenaline reuptake inhibitor. The risk of respiratory depression is significantly lower at equianalgesic doses and does not depress the hypoxic ventilatory response. It has limited effect on gastrointestinal motor functions. Nausea and vomiting are commonest side effects of tramadol. Tramadol has been widely used clinically and evaluated during the past 20 years with broad indications leading to widespread use.

Ketorlac tromethamine is a member of pyrrolo-pyrrole group of nonsteroidal anti-inflammatory drugs (NSAID’S). In the year 1970, the mechanism of action of NSAID’s was hypothesized by Vane. Vane hypothesis was based on the critical role that the local production of prostaglandins exerted in the inflammatory process. This was substantiated by showing that prostaglandins reproduce some of the cardinal signs of inflammatory process. Main action of ketorlac is the inhibition of prostaglandin synthesis by competitive blocking of the enzyme cyclooxygenase (Cox). This study was conducted to compare the postoperative analgesic efficacy of tramadol and ketorlac following surgical removal of impacted mandibular third molar.

Materials and methods

This study was conducted in the department of oral and maxillofacial surgery. 150 patients with mandibular third molar impactions were selected from the outpatient department on random basis during the period of 1 year Jan 2013 to Dec 2013. The methodology and procedure of study was cleared by ethical committee, Hkdet’s Dental College, Humnabad, and Karnataka. All the individuals were well informed about the study and consent was taken. The inclusion criteria were age in between 18 to 30, undergoing mandibular third molar tooth extraction. Exclusion criteria were: History of opioid allergy, systemic diseases, end stage renal disease, history of seizure or any other abnormal laboratory tests that could interfere with our results. The patients were divided in to two groups containing 75 patients in each group. Group A received Tramadol 50mg oral dose before the extraction and dose repeated after 6 hours. The group B received ketorlac 10mg oral dose before the extraction and dose was repeated after 6 hours. The group B received ketorlac 10mg oral dose before the extraction and dose was repeated after 6 hours. Pain assessment was done by verbal rating using visual analog scale. [0-no pain, 2-mild pain, 4-tolerable, 6-distressful pain, 8-severe pain and 10-totally disabling pain]. The pain assessment was started after the tooth extraction at time intervals of 30 mins, 1hr, 2hrs, 3hrs, 4hrs, 5hrs, 6hrs, 12hrs, 18hrs, 24hrs. Statistical analysis was done using Chi-square test.

Results

The analgesic effect for Group A (Tramadol) was started within first hour and reached its maximum analgesic effect in three hours and was lasted for six hours. The patients scored a pain intensity of 2.18 on visual analog scale.

The analgesic effect of group B (Ketorlac) was started within 30 mins and reached its maximum effect in first hour. But the effect was not sustained till next dose. The patient felt pain during the fifth hour itself. At the end of 24 hrs patient scored 2.82 on Visual analog scale. during statistical analysis P value was less than 0.05 and differnece between the groups were considered significant (Table 1).

Duration of analgesia was more in group A compared to group B. The major adverse effects noticed in group A subjects were sedation (5%) where as in Group B subjects reported epigastric ain(20%), and nausea (9%).
Table 1. Comparison of pain intensities of Tramadol and Ketrolac

<table>
<thead>
<tr>
<th>Time interval</th>
<th>Pain VAS Score Mean ± SD</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Group A</td>
</tr>
<tr>
<td>First Dose</td>
<td></td>
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<tr>
<td>30 Minutes</td>
<td>6.16±0.34</td>
</tr>
<tr>
<td>1st Hour</td>
<td>3.75±0.56</td>
</tr>
<tr>
<td>3rd Hour</td>
<td>1.65±0.99</td>
</tr>
<tr>
<td>4th Hour</td>
<td>2.78±0.80</td>
</tr>
<tr>
<td>5th Hour</td>
<td>4.23±0.34</td>
</tr>
<tr>
<td>6th Hour</td>
<td>5.67±0.73</td>
</tr>
<tr>
<td>Second Dose</td>
<td></td>
</tr>
<tr>
<td>12th Hour</td>
<td>3.77±0.16</td>
</tr>
<tr>
<td>Third Dose</td>
<td></td>
</tr>
<tr>
<td>18th Hour</td>
<td>3.56±0.86</td>
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<tr>
<td>Fourth Dose</td>
<td></td>
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<tr>
<td>24th Hour</td>
<td>2.18±0.16</td>
</tr>
</tbody>
</table>

Discussion

NSAID’s are being used increasingly for the treatment of post operatively painful, both as sole analgesic or as an adjuvant to Opioid medication based on the degree of pain. The choice of NSAID’s for pain relief remains empirical and is often made based on the convenience of delivery rather than efficacy. In spite of advances in modern medicine, no single drug satisfies all the criteria of ideal post extraction analgesic. NSAID’s are widely used for pre operative and postoperative pain control. By controlling post extraction pain dentist can relieve the stress and increase the comfort of patient. The present study was designed to assess and compare the efficacy of two most commonly used analgesics i.e., tramadol and ketorolac.

Tramadol is being widely used to control chronic pain. Literature shows that tramadol is a safe post operative analgesic. Ketorolac is most commonly used NSAID for short term management of pain. Main focus of this study was to compare pain intensity and adverse effects of these two commonly used analgesics. This study clearly shows that both drugs has better analgesic properties. Even though Ketorolac showed its analgesic effect very rapidly the duration of analgesia was lasted for 4 hours (Figure 1). On the contrary the analgesic effect of Tramadol started in first hour and lasted for six hours (Figure 1). The patients who received ketorolac also experienced epigastric pain and nausea, where as Tramadol caused sedation in few patients and vitals were stable (Figure 2(a)).

Conclusion

In conclusion, Tramadol is a safe analgesic with longer duration of analgesic action and it can be safely used for relieving post extraction pain after surgical removal of mandibular third molar tooth. The percentage of side effects of Tramadol was minimal as compared to Ketorolac.

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References


How cite this article

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